Ham-Homebrew Digest   Fri, 11 Feb 94   Volume 94 : Issue   26

Today's Topics:
                    2m/70cm linear - circuit wanted
                         BALUN FOR 2-M YAGI
                  Microphones & motorcycle helmets
                Project #15: A Spark-Gap Transmitter
                    QRP shopping list (3 msgs)
                        Transceiver headset
                    Varactor tuned VFOs (2 msgs)
               Yaesu MH-29 speaker/mike audio levels

Date: 8 Feb 94 16:40:11 GMT
From: ogicse!cs.uoregon.edu!sgiblab!spool.mu.edu!darwin.sura.net!
fconvx.ncifcrf.gov!mack@network.ucsd.edu
Subject: 2m/70cm linear - circuit wanted
To: ham-homebrew@ucsd.edu

In article <patrick_tatro.16.7C558180@stortek.com> patrick_tatro@stortek.com
(Patrick Tatro) writes:
>In article <1994Feb8.080757.1530@mnemosyne.cs.du.edu> dtock@nyx.cs.du.edu (David
Tock) writes:
>>From: dtock@nyx.cs.du.edu (David Tock)
>>Subject: 2m/70cm linear - circuit wanted
>>Date: Tue, 8 Feb 94 08:07:57 GMT
>
>David

```
>       Communication Concepts Inc. has a kit for 2 meters that sells for $119
>that can take 5 watts to 50 or 60 watts and they also sell 70cm linear kits
>for $159. I don't know if this fits your needs, but I built the 2 meter
>amplifier and it works great. If you need their address, Email me.
>
>73's
>Patrick Tatro N0WCG
>
Really?
     I know someone has a kit, but it was 28V (my car is 12V). Are these
12V and do they have the R/R relays for this price.?
     Joe Mack NA3T
     mack@ncifcrf.gov
```

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In article <2j64ii$5ip@granny.mdd.comm.mot.com> shane@mdd.comm.mot.com
(Hugh Shane N7UAX) writes:
>Can anyone suggest a design for matching a 50-ohm coax feed to a six beam,
>2 meter Yagi. The balun designs I've seen all seem to be restricted to
>frequencies less than 100MHz. There must be a classic technique, I just
>can't find it!
```

The classic VHF balun technique is the quarter-wave sleeve balun. In old days
these were often called beer-can baluns, so named because steel beer cans
were soldered together to form the outer sleeve. KLM and a few other companies
sold these commercially but they are easy to build with copper tubing and pipe.
Design information can often be found in the older ARRL VHF manuals. 73
                              Barry WA4VZQ

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| ___ _____  |    Dr. Barry L. Ornitz         WA4VZQ
| | / /       | |    Eastman Chemical Company
| | / /       | |    ECC Research Laboratories, Engineering Research Div.
| |< < K O D A K| |  Process Instrumentation Research Laboratory
| | \ \       | |    P. O. Box 1972, Building 167B
| |__\ _____| |   Kingsport, TN  37662  (615/229-4904, FAX 615/229-4558)
|               |    INTERNET:  ornitz@kodak.com
 ----------------
```
Eastman Chemical Company is no longer a part of Kodak, now being an independent
company. Kodak is letting us use her Internet connection until we get our own.

Date: Mon, 7 Feb 1994 20:56:55 GMT
From: agate!howland.reston.ans.net!vixen.cso.uiuc.edu!sdd.hp.com!col.hp.com!
srgenprp!alanb@network.ucsd.edu
Subject: Microphones & motorcycle helmets
To: ham-homebrew@ucsd.edu

Tim Ikeda (timi@mendel.berkeley.edu) wrote:
: I'm wondering if anyone has a good system for reducing the wind
: and engine noise picked up by full-faced helmet microphones.

They're expensive, but the noise-cancelling mikes used in airplanes
do an incredible job.

AL N1AL

Date: Tue, 8 Feb 1994 21:14:14 +0000
From: ihnp4.ucsd.edu!sdd.hp.com!swrinde!cs.utexas.edu!howland.reston.ans.net!
pipex!demon!dis.demon.co.uk!kanga.demon.co.uk!dick@network.ucsd.edu
Subject: Project #15: A Spark-Gap Transmitter
To: ham-homebrew@ucsd.edu

HI what is the "boatanchors" group?
Info appreciated
73 de Dick

Date: 9 Feb 1994 21:57:26 GMT
From: koriel!newscast.West.Sun.COM!abyss.West.Sun.COM!sunspot!myers@ames.arpa
Subject: QRP shopping list
To: ham-homebrew@ucsd.edu

In article 13644@tekig7.PEN.TEK.COM, royle@tekig6.PEN.TEK.COM (Roy W Lewallen)
writes:
>
>
>myers@pongo.West.Sun.COM (Dana Myers):
>>>
>>>Transistors
>>[...]
>>>2N4416+
>>[...]
>>>MPF102+
>

>>These are essenitally the same transistor, at least as far as QRP projects
>>go. . .
>
>Although usually true, there are a couple of common applications
>where substituting an MPF102 for a 2N4416 might cause a problem. These
>JFETs are commonly used as an oscillator, either Harley or Colpitts. In
>these simple oscillators, the oscillator output amplitude is directly
>related to the individual device's pinchoff voltage. The MPF102 has much
>looser specifications, so in some cases will deliver too small (or large)
>a signal when used in one of these oscillators in place of a 2N4416. Of
>course, you can make up the difference in a following stage if it's a
>one-off design or you're willing to put in an adjustment.

There have been a few letters published in QST mentioning the device-to-device
variation of the MPF102 can result in considerable performance changes. In
particular, the use of the MPF102 in an oscillator is rather mentioned; you just
about have to hand-select a FET out of a batch for best/correct output.

I've never really looked at it hard, but most oscillator circuits that use
a JFET include a diode from the gate to ground. This obviously serves to
clamp the gate voltage before the gate/source diode conducts (as long as the
diode is fast enough :-)), and also will build a DC offset on the coupling
capacitor from the tank circuit to the gate. This DC bias would appear to,
and is said to, provide an AGC action is stabilizing the oscillator output
amplitude. What comes to mind, is this action adequate to compensate for
common device variations?

>The other application where you might have a problem is using the MPF102
>for a common-gate RF amplifier. A typical application runs the JFET at
>Idss and couples the signal in through a 1:4 impedance ratio transformer.
>With the 2N4416, this will result in an input SWR of 1.5 or less; the
>MPF102 can present a mismatch as high as 2.5:1 because of its looser specs.
>This may not cause a problem, but it could reduce stage gain. Or if the
>common-base stage follows a filter, it could result in degraded filter
>performance.

Yup; I always recommend using a J310 for such an application since (a)
the specs are tighter and increase chance of repeatability and (b) the
fairly high forward Gm of the J/U310 provides a pretty good match directly
to 50-75ohms.

---
 * Dana H. Myers KK6JQ, DoD 466 | Views expressed here are
     *
 * (310) 348-6043 | mine and do not necessarily   *
 * Dana.Myers@West.Sun.Com | reflect those of my employer
     *
 * This Extra supports the abolition of the 13 and 20 WPM tests *

Date: 10 Feb 94 18:27:40 GMT
From: ogicse!news.tek.com!tekig7!tekig6!royle@network.ucsd.edu
Subject: QRP shopping list
To: ham-homebrew@ucsd.edu

myers@cypress.West.Sun.COM (Dana Myers):

>I've never really looked at it hard, but most oscillator circuits that use
>a JFET include a diode from the gate to ground. This obviously serves to
>clamp the gate voltage before the gate/source diode conducts (as long as the
>diode is fast enough :-)), and also will build a DC offset on the coupling
>capacitor from the tank circuit to the gate. This DC bias would appear to,
>and is said to, provide an AGC action is stabilizing the oscillator output
>amplitude. What comes to mind, is this action adequate to compensate for
>common device variations?

No. The diode limits the positive excursion of the gate signal. Pinchoff
determines the negative excursion.

Roy Lewallen, W7EL
roy.w.lewallen@tek.com

Date: 8 Feb 1994 23:16:12 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!swrinde!sgiblab!sgigate.sgi.com!olivea!koriel!
newscast.West.Sun.COM!abyss.West.Sun.COM!pongo!myers@network.ucsd.edu
Subject: QRP shopping list
To: ham-homebrew@ucsd.edu

In article <CKx8tG.K85@ryn.mro.dec.com> randolph@est.enet.dec.com (Tom Randolph)
writes:
>
>With flea market season rapidly approaching here in the NE, I sat down with
>W1FB's QRP Notebook and went through all the schematics to compile this parts
>list. This is everything that appears 3 or more times in the book, except for
>important stuff like chips. Buy lots of it if it has a + next to it.
>So now you all can fill up your QRP junk boxes...
>
>Transistors
[...]
>2N4416+
[...]
>MPF102+

These are essenitally the same transistor, at least as far as QRP projects
go. I stocked up on J310s from Hamilton/Hallmark, which is at least as
good as the 2N4416/MPF102, for $.34/ea brand-new.

--
 * Dana H. Myers KK6JQ, DoD 466 | Views expressed here are
     *
 * (310) 348-6043 | mine and do not necessarily   *
 * Dana.Myers@West.Sun.Com | reflect those of my employer
     *
 * This Extra supports the abolition of the 13 and 20 WPM tests *

Date: 10 Feb 1994 15:29:28 GMT
From: concert!ecsgate!bruce.uncg.edu!hamlet!henderdx@decwrl.dec.com
Subject: Transceiver headset
To: ham-homebrew@ucsd.edu

I have a question that is possibly a little out of place here in your
news group, but for lack of a better place to post...

I'm not a HAM-ster, but I'd like to build a headset
(Microphone/earphones) w/ a built in transmitter reciever for use w/ my
computer. I'd like it as compact as possible. i.e. all in the head set
wo/ a battery pack.

This will require at least two (three if I decide to go stereo) IC's
(RS-232), plus possibly a very small pre-amp for the mic (this will
depend on output levels on the mic and required input levels at the
IC.)

Does anyone know where I can get a design for such a project? Or better
yet, has anyone ever built that sort of thing?

Any info, hints, tips, tricks, or possible "hang-ups" would be greatly
appreciated.

--

        David Henderson
     henderdx@hamlet.uncg.edu

Date: Fri, 11 Feb 1994 01:08:19 GMT
From: cs.utexas.edu!news.unt.edu!news.oc.com!news.kei.com!eff!news.umbc.edu!
europa.eng.gtefsd.com!emory!kd4nc!ke4zv!gary@uunet.uu.net

Subject: Varactor tuned VFOs
To: ham-homebrew@ucsd.edu

In article <CKvBKr.HMn@hpcvsnz.cv.hp.com> tomb@lsid.hp.com (Tom Bruhns) writes:
>Actually, in a sense, there are a whole lot of them: as
>VCO's in PLLs in things like handhelds. As someone else
>pointed out, they aren't particularly temp stable, but a
>bit of feedback can solve that problem. And you can
>frequency or phase lock them quite easily: frequency
>locking is especially easy, since if you assume that the
>VCO won't drift too much in a single count period (say
>1/10 second), you only have to keep track of the least
>significant bits to get enough info for a correction.
>Continuing the example, 4 bits of count could correct
>+/- 70Hz each 1/10 second, and if you feed the correction
>into an integrator, it will track. If you have a drift
>that large, you probably need to work on the open-loop
>characteristics anyway, before closing the loop. Anyway,
>the result would be a 10Hz reference, a 4 bit counter,
>a 4 bit latch to save the "desired", a 4 bit adder
>(actually subtracter) to find the error, a 4 bit DAC
>(4 resistors driven from the CMOS output of the adder),
>and an integrator. You could put all that in a FPGA
>(including the reference generator and timing stuff)
>pretty trivially. But you can also do it with common
>parts that have been available since the late '60's...

Hmmm, this scheme would allow analog tuning that "snaps"
to 10 Hz increments with the long term drift characteristics
of a crystal reference. Neat.

Gary

--
Gary Coffman KE4ZV | You make it, | gatech!wa4mei!ke4zv!gary
Destructive Testing Systems | we break it. | uunet!rsiatl!ke4zv!gary
534 Shannon Way | Guaranteed! | emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244 | |

Date: 11 Feb 1994 03:48:37 GMT
From: agate!howland.reston.ans.net!math.ohio-state.edu!magnus.acs.ohio-state.edu!
usenet.ins.cwru.edu!odin!trier@network.ucsd.edu
Subject: Varactor tuned VFOs
To: ham-homebrew@ucsd.edu

In article <CKvBKr.HMn@hpcvsnz.cv.hp.com>, Tom Bruhns <tomb@lsid.hp.com> wrote:

>Continuing the example, 4 bits of count could correct
>+/- 70Hz each 1/10 second, and if you feed the correction
>into an integrator, it will track.

Neat! One of those Microchip PICs could do the job nicely, replacing
the adder and 10 Hz reference. (Software timing loops could do the
job.)

Are there any other clever ways to reduce this scheme to fewer off-the-
shelf components?

        Stephen

--
Stephen Trier KB8PWA   Dave: [H]as anyone ever met a Zamboni driver?
Other: trier@ins.cwru.edu   Mike: The next version of OS/2 will include a
Home: sct@po.cwru.edu   Zamboni driver. Let's see Microsoft top that!
                                  (dave@cs.arizona.edu & miked@vnet.ibm.com)

Date: 11 Feb 1994 03:52:18 GMT
From: dog.ee.lbl.gov!agate!kabuki.EECS.Berkeley.EDU!kennish@network.ucsd.edu
Subject: Yaesu MH-29 speaker/mike audio levels
To: ham-homebrew@ucsd.edu

I just got the fancy speaker mike for the Yaesu FT-530 HT with
the digital readout and all that. However, it seems to have
a very low audio level on transmit (i.e. low deviation). I literally
have to shout into the mike to get the same audio level as that
obtained by the built in mike on the HT. Anyone else have
this problem or do I have a lemon???

                        -thanks in advance es 73
                         Ken

Date: Tue, 8 Feb 1994 21:45:04 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!cs.utexas.edu!howland.reston.ans.net!
paladin.american.edu!darwin.sura.net!fconvx.ncifcrf.gov!mack@network.ucsd.edu
To: ham-homebrew@ucsd.edu

References <patrick_tatro.16.7C558180@stortek.com>, <CKwzMz.9Ks@ncifcrf.gov>,
<patrick_tatro.17.7C558180@stortek.com>win.su
Subject : Re: 2m/70cm linear - circuit wanted

In article <patrick_tatro.17.7C558180@stortek.com> patrick_tatro@stortek.com

(Patrick Tatro) writes:
>In article <CKwzMz.9Ks@ncifcrf.gov> mack@ncifcrf.gov (Joe Mack) writes:
>>From: mack@ncifcrf.gov (Joe Mack)
>>Subject: Re: 2m/70cm linear - circuit wanted
>>Keywords: Kits
>>Date: Tue, 8 Feb 1994 16:40:11 GMT
>

>>12V and do they have the R/R relays for this price.?
>>   Joe Mack NA3T
>>   mack@ncifcrf.gov
>Joe
>   The kit I built was 12V - I don't know what you mean by R/R relays - The
>amp was a mono bander - It was real easy to assemble - It took abt 5 hours to
>assemble and 1 hour to tune the SWR's . If you need more info contact
>Communication Concepts Inc.
>508 Millstone Drive
>Beavercreek, Ohio
>   45434-5840
>
>ph 513-426-8600
>
>73's
>Patrick Tatro N0WCG
>
>
>
Sorry that was T/R relays (I didn't see it till the next round). I just called
them - Their UHF amp is 28V, but they are hoping to have one for 12V by Dayton.
I think their VHF amp used to be 28V, but now it's 12V. I'll keep me
eyes out. Thanks for the tip.

      Joe NA3T
      mack@ncifcrf.gov

End of Ham-Homebrew Digest V94 #26
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